



Aquatic Nuisance Species Program

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Problem Definition

Aquatic nuisance species are non-native aquatic plants or animals that threaten the diversity or abundance of native species, the ecological stability of infested waters, or the commercial, agricultural or recreational activities that depend on such waters (Chapter 77.60 RCW).

Not all non-native species become nuisance species. Native species live within their natural or historical range and zone of dispersal. Purple loosestrife, hydrilla and *Spartina spp.* are a few examples of plants that currently threaten estuaries, wetlands, rivers and lakes in the Puget Sound basin. The European green crab, Chinese mitten crab and zebra mussel are aquatic nuisance animal species that could arrive at anytime and threaten the Sound. After habitat loss, aquatic nuisance species pose the greatest threat to the diversity of Puget Sound.

Nationwide, about 400 of the 958 (42 percent) species listed as threatened or endangered under

the Endangered Species Act are considered to be at risk primarily because of competition with and predation by non-indigenous species.¹ Aside from ecological damages, the economic consequences of aquatic nuisance species invasions are also significant. For example, the federal government estimates that the costs incurred to control or adapt to zebra mussel infestations in the Great Lakes at about \$30 million per year. Even human health can be affected by aquatic nuisance species. Non-native microscopic organisms, such as various pathogens and viruses, have caused health concerns and illnesses around the nation.

One way non-native species enter aquatic and wetland environments is through ballast water (water that is taken onboard or discharged to stabilize ships). A large percentage of Puget Sound's 52 documented non-native species are probably due to ballast water. Other pathways include "hitchhikers" associated with the import of aquaculture species, shipment of live seafood and bait and the packaging associated with these, and the transport of recreational boats into and within the state.

¹ Pimentel, David, L. Lach, R. Zuniga and D. Morrison. *Environmental and Economic Costs Associated with Non-indigenous Species in the United States*. Cornell University, College of Agriculture and Life Sciences, June 12, 1999.

What does "shall" mean?

The Action Team has determined that the actions in this plan are needed to protect and restore Puget Sound. Consistent with the importance of these actions, this plan says that appropriate implementers "shall" perform the actions. However, implementation of many of these actions is a long-term process. The Action Team's work plans will identify the actions that need to be taken each biennium to implement this management plan. Implementation of actions in the work plans is subject to the availability of funds and public input into the decision-making processes of implementing entities. When an action is included in a biennial work plan, the Action Team expects that it will be implemented in accordance with the relevant provisions of the Puget Sound management plan, in accordance with Chapter 90.71 RCW.

The key strategy for managing aquatic nuisance species is to prevent their introduction and to contain and eliminate existing aquatic nuisance species as quickly as possible. Coordinated federal, state and local programs are essential to carry out this strategy. Other elements of a successful strategy include education and technical assistance programs to build awareness and encourage voluntary management, and monitoring to detect the presence of new aquatic nuisance species and track the distribution of existing aquatic nuisance species.

Institutional Framework

Programs and voluntary efforts at the federal, state and regional levels address introduction of aquatic nuisance species and control or eradication of those already present in fresh and marine waters and wetlands.

The 1996 National Invasive Species Act (NISA) directs federal agencies to coordinate prevention and control activities and provide technical, financial, and research assistance to states and other entities. NISA also created the federal interagency Aquatic Nuisance Species Task Force to coordinate regional and national efforts to control and eradicate aquatic nuisance species.

The U.S. Coast Guard oversees a voluntary program to manage ballast water from ships whose voyages originate outside of the exclusive economic zone (EEZ). Vessels are encouraged to exchange ballast water in the open ocean prior to entering the coastal jurisdiction of the United States. This program does not apply to vessels that ply their trade within the EEZ. Ballast water is a major pathway for introducing and spreading aquatic and wetland nuisance species.

At the state level, the Department of Fish and Wildlife manages non-native animal species. The Noxious Weed Control Board and departments of Agriculture, Ecology and Natural Resources manage non-native aquatic and wetland plant species.

Fish and Wildlife can authorize the release of non-native aquatic animals and may also designate certain non-native animal species as deleterious, making it illegal to import or possess them. The agency also prepared a statewide *Aquatic Nuisance Species Management Plan* to respond to imminent threats of aquatic nuisance species to Washington waters under NISA. Fish and Wildlife administers a ballast water management program and will implement treatment standards for ballast water dis-

charged to state waters after 2002. Fish and Wildlife also coordinates the statewide interagency Aquatic Nuisance Species Coordinating Committee. The committee's mission is to minimize the unauthorized or accidental introduction of non-native aquatic species and to control the spread of aquatic and wetland nuisance species already established in the state. Federally recognized tribes, federal agencies, local conservation organizations, environmental groups and affected businesses or industry are encouraged to participate on the coordinating committee.

The Noxious Weed Control Board lists non-native noxious plants that adversely affect agricultural and natural areas and oversees the work of county noxious weed control boards to control the introduction and spread of these species. The Department of Agriculture maintains a plant quarantine list of species that may not be transported, bought or sold in the state. The department also coordinates and administers a program to eradicate and control the spread of *Spartina spp.* and purple loosestrife that invade estuaries and wetlands. The Department of Natural Resources manages, controls and eradicates aquatic nuisance plant and animal species on state-owned lands. The Department of Ecology administers a financial and technical assistance program to eliminate noxious non-native aquatic plants in Washington's lakes and rivers. Local noxious weed control boards work with landowners to prevent and control noxious weeds and plants on their properties.

All state agencies with pest management responsibilities must use an integrated pest management approach defined in Chapter 17.15 RCW to prevent, control, contain and eliminate aquatic nuisance species. Integrated pest management means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives.

The shipping industry also plays an important role in preventing non-native species introductions. Through the Pacific Coast Ballast Water Group, the industry seeks to find west coast solutions to non-native species introductions from ballast water discharges, including the use of ballast water treatment technologies.

Program Goal

Prevent the unauthorized or accidental introduction of non-native species to Puget Sound; and control the spread of and eradicate aquatic and wetland nuisance species already introduced.

Program Strategy

The strategy to achieve this goal is to: adopt existing state and regional aquatic and wetland nuisance species management plans and programs; focus on Puget Sound and Georgia Basin shared waters aquatic nuisance species management issues; improve current management and monitoring of unauthorized and accidentally introduced non-native species; and provide education, public involvement and technical assistance.

Program Elements

ANS-1. Aquatic Nuisance Species Management Programs

The Action Team adopts the state *Aquatic Nuisance Species Management Plan*, the state *Spartina spp.* and purple loosestrife program and management plans for Puget Sound, the recommendations of the Zebra Mussel and Green Crab Task Force, the state freshwater aquatic plant management program and the state ballast water management program established in Chapter 77.120 RCW.

The Washington Department of Fish and Wildlife, in consultation with the state Aquatic Nuisance Species Coordinating Committee, the U.S. Fish and Wildlife Service and Puget Sound tribal governments, shall:

- a. Review and update the state *Aquatic Nuisance Species Management Plan*.
- b. Incorporate Zebra Mussel and Green Crab Task Force recommendations and actions into the state *Aquatic Nuisance Species Management Plan*.
- c. Ensure that the state *Aquatic Nuisance Species Management Plan*, emergency response, and prevention and control efforts are not likely to jeopardize the continued existence of any endangered or threatened species; nor result in the destruction or adverse modification of critical habitat of

such species as specified in Section 7 of the Endangered Species Act of 1973; nor cause unacceptable long-term impact or loss of other aquatic and wetland species or impair natural ecological processes.

Target Date for ANS-1: Review and update, as necessary, the state *Aquatic Nuisance Species Management Plan* by December of each odd numbered year starting in 2001.

ANS-2. Program Coordination

The Action Team endorses the state Aquatic Nuisance Species Coordinating Committee as the forum to coordinate and foster cooperation on statewide aquatic and wetland nuisance species management issues. Fish and Wildlife shall lead and support the activities of the committee.

The Action Team support staff shall ensure coordination of aquatic and wetland nuisance species programs in the Puget Sound basin including prevention, control, eradication, education, monitoring and research activities. The Action Team support staff shall also work with the following groups to rank and recommend priority actions, costs and funding sources for Puget Sound work plans: the U.S. Fish and Wildlife Service, Puget Sound tribal governments, the Puget Sound/Georgia Basin International Task Force, the Northwest Straits Commission and the state Aquatic Nuisance Species Coordinating Committee.

Target Dates for ANS-2: Recommend funding priorities to the Puget Sound Council and Action Team in December of even numbered years starting in 2002.

ANS-3. Management Improvements

In order to fill gaps in state programs and improve the management of all pathways for the unauthorized or accidental introduction and spread of non-native species, the Washington State Department of Fish and Wildlife, with assistance from appropriate members of the Aquatic Nuisance Species Coordinating Committee, the U.S. Fish and Wildlife Service and Puget Sound tribal governments, shall:

- a. Develop and implement, through the *Aquatic Nuisance Species Management Plan*, a biennial process to: identify potential new threats to the Puget Sound basin; identify the threats associated with the spread of existing aquatic nuisance species; assess the relative environ-

mental risks associated with these threats; and report these findings to the Puget Sound Council and Action Team.

- b. Develop and implement a process to provide economic incentives for voluntary prevention, control and eradication of aquatic nuisance plants and animals.
- c. Work with the departments of Agriculture and Natural Resources to review legal issues and develop solutions to facilitate control of aquatic nuisance species on property where ownership is in question or where access is denied.
- d. Develop a model response plan that defines how to respond to new aquatic nuisance species threats, identifies permit and regulatory issues and solutions, defines agency responsibilities, ensures that adequate funding is available to respond to these threats, and determines if interagency agreements are necessary.
- e. Develop a process to classify and regulate non-native aquatic animal species. The process should ensure that all species intended for introduction or sale are screened to demonstrate non-invasiveness before being allowed into the Puget Sound basin. The process and regulations should distinguish among: 1) species that pose a significant threat to the biological health and diversity of Puget Sound; 2) species that pose a minimal threat to the biological health and diversity of Puget Sound; 3) species for which there is little or no information to ascertain their status as an aquatic nuisance species; and 4) species that have potential commercial or recreational value.
- f. In consultation with the departments of Agriculture and Health and other agencies, evaluate whether there is a need to classify and regulate microorganisms that are not currently regulated as plant or animal disease organisms by Department of Agriculture; as fish and shellfish pathogens by the departments of Fish and Wildlife or Health; or through the state's ballast water treatment standards. Microorganisms may include viruses, bacteria and fungi but excludes genetically modified organisms.
- g. Develop and implement a program to inspect and certify that all vessels transported into Washington on trailers are free of

unauthorized non-native species. This program should build on the state's commercial vehicle inspection program. The program should also implement a recreational boater education and inspection program to minimize the spread of aquatic nuisance species between water bodies within the Puget Sound region. Inspections should target recreational vessels that originate from water bodies infested with aquatic nuisance species classified as a significant threat to the biological health and diversity of Puget Sound.

- h. Coordinate with Oregon, California, Idaho, Alaska, British Columbia, other states and national entities to develop and implement consistent regional solutions to aquatic nuisance threats and problems, including ballast water. The Washington State Department of Transportation will assist by bringing information regarding federal transportation agency policy on the spread of terrestrial non-native species as well as potential sources of funding from Federal Highway Administration to address the link between transportation activities and aquatic and wetland nuisance species.
- i. Report annually to the Puget Sound Council and the Action Team on the status of implementing these management improvements and the state ballast water management program.

Target Date for ANS-3: Develop improvement components no later than 2003. Implementation ongoing.

ANS-4. Monitoring and Assessment

The Action Team support staff shall ensure the development and implementation of a strategy to monitor unauthorized or accidentally introduced non-native aquatic and wetland species in the Puget Sound basin. The strategy shall identify tasks, lead agencies, costs and funding sources and shall include actions to:

- a. Encourage citizen monitoring activities to identify unauthorized or accidentally introduced non-native species and to monitor their distribution.
- b. Conduct baseline and ongoing ecological surveys to characterize threats, risks and changes over time and to measure the per-

formance of the aquatic nuisance species program in achieving its goal.

- c. Collect and distribute information to resource managers and the public.

Target Date for ANS-4: Develop the strategy no later than 2003. Implementation ongoing.

ANS-5. Education and Technical Assistance

The Action Team support staff shall ensure the development and implementation of a coordinated strategy for education, public involvement and technical assistance on aquatic and wetland nuisance species in the Puget Sound basin. The strategy shall identify tasks, lead agencies, costs and funding sources for each element and shall target, in the following priority order:

- a. Pathways for the introduction of aquatic nuisance species such as the shipping, live seafood and aquaculture industries; pet and aquarium trade businesses; public and private laboratories; ports; and other potential pathway groups.
- b. Federal, tribal, state and local government resource managers.
- c. The general public.

Target Date for ANS-5: Develop the strategy no later than 2003. Implementation ongoing.

ANS-6. Measuring Program Effectiveness

The Puget Sound Action Team support staff shall evaluate activities and environmental performance of the program. This supports the adaptive management approach described in the Estuary Management section of this plan. At a minimum, these evaluations should incorporate information from the following monitoring and assessment sources:

- a. Program measures that track implementation of the program:
 - Measure: Completion of program elements.
 - Target: Complete elements by target dates.
- b. Measures of environmental conditions for which this program is a major or important determinant:
 - Measure: The number of new unautho-

rized or accidentally introduced non-native plant and animal species established in the Puget Sound basin, determined by ambient monitoring data.

Target: Detect no new introductions each biennium.

- Measure: The area of *Spartina spp.* infestations in the Puget Sound basin, determined by data provided by Agriculture.

Target: Completely eradicate *Spartina spp.* by June 2011.

